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New enrichment workflows for proteomic biomarker discovery

Matthew Kuruc
ProFACT Proteomics, Inc., USA

Abstract

ProFACT Proteomics has developed a proteomics separations and enrichment platform that streamlines proteomic workflows while also preserving biological integrity. Using these new tools, proteomic and molecular profiles can be derived from biofluids and naturally-sourced disease tissue or cellular models – a clear distinction to other functional platforms reliant on recombinant sources. New therapeutic compounds can be characterized to help refine lead candidate selection, discover novel biomarkers and provide additional mechanistic insight into suitable disease indications.

Functional characterization and derivative molecular profiles can then help correlate proteins thus identified to drug candidates' tissue-specific expression of enzymes, with the potential to gauge promiscuity and identify biomarkers. Furthermore, to enrich low abundance proteins, LC-MS strategies adopting on-bead digestion to improve peptide recovery and simplify proteomic workflows will be described.

The new functional annotation methods will complement conventional sequence annotation while addressing the problems of drug promiscuity and the subtleties of protein attributes when the same or similar underlying sequence can have multiple conformations and functions, and when different sequences sometime perform the same or similar function. Thus, new enrichment products make possible a way to efficiently sift through these biological complexities, localizing subproteomes of prospective protein biomarkers that can be correlated to structural and sequence relationships. Such an integrated approach has the potential for new and useful service to biomarker discovery and personalized medicine.

Biography

Mr. Kuruc is a serial entrepreneur, starting as a co-founder of Affinity Technology Inc., where he was President from 1990 until 1996. After it was acquired by LigoTech, Inc., he held an executive business development role until becoming a co-founder of ProFACT Proteomics in 2004. From 1987 to 1990 he held various marketing and sales positions with Amicon Division of W. R. Grace & Co. (now Millipore), and prior to that, product and sales positions with industrial separations equipment suppliers.